



Building Gas Markets in India

Evaluating Investment Risks

April 18, 2002

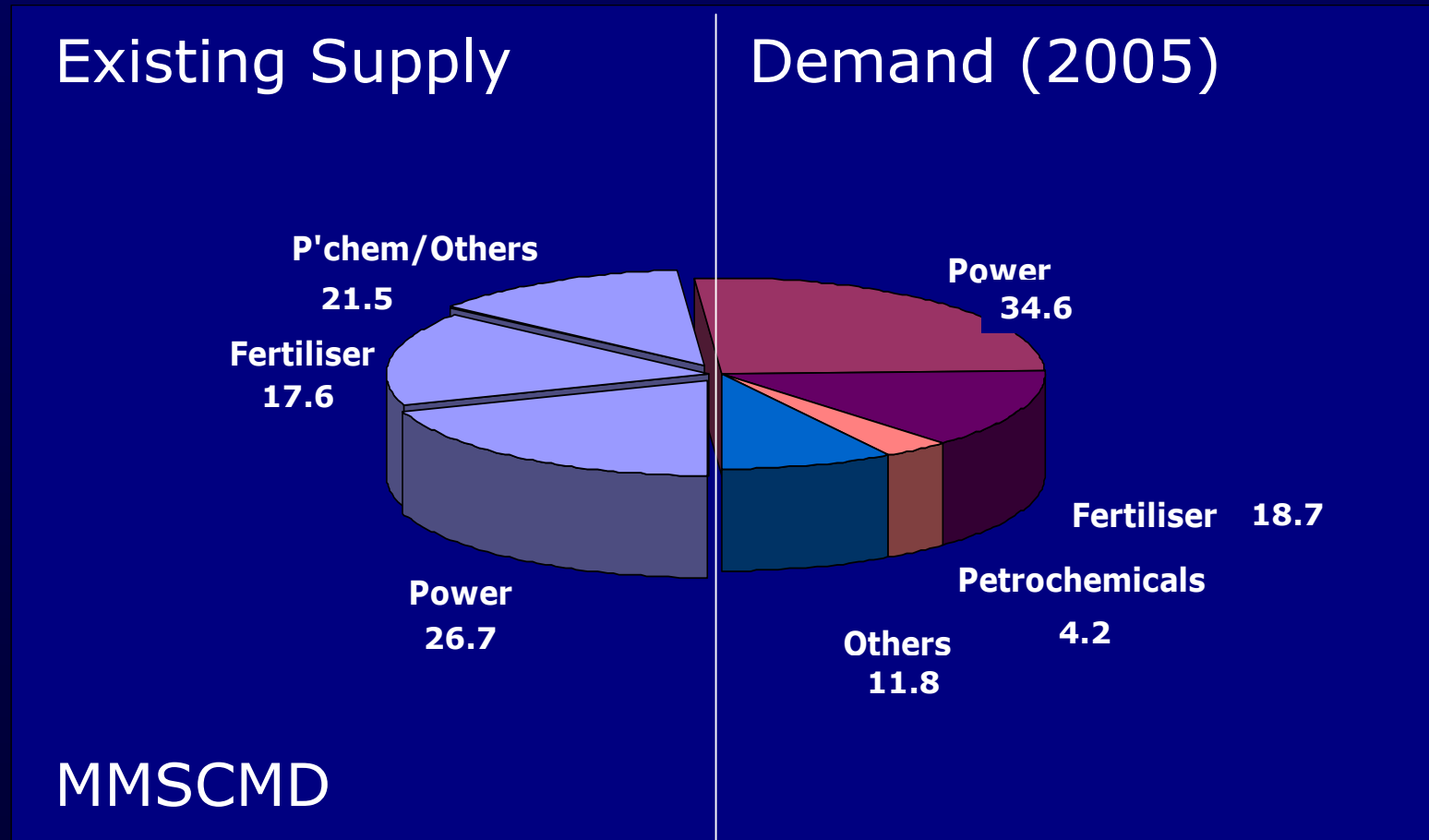
Indian Energy Market

- **Highly regulated**
- **Regulation driven by desire to subsidise basic commodities, import substitution and security**
- **Demand driven by Power, Fertiliser and Petrochemical users**
- **Regulated prices below free market prices and low market/end user pricing correlation**

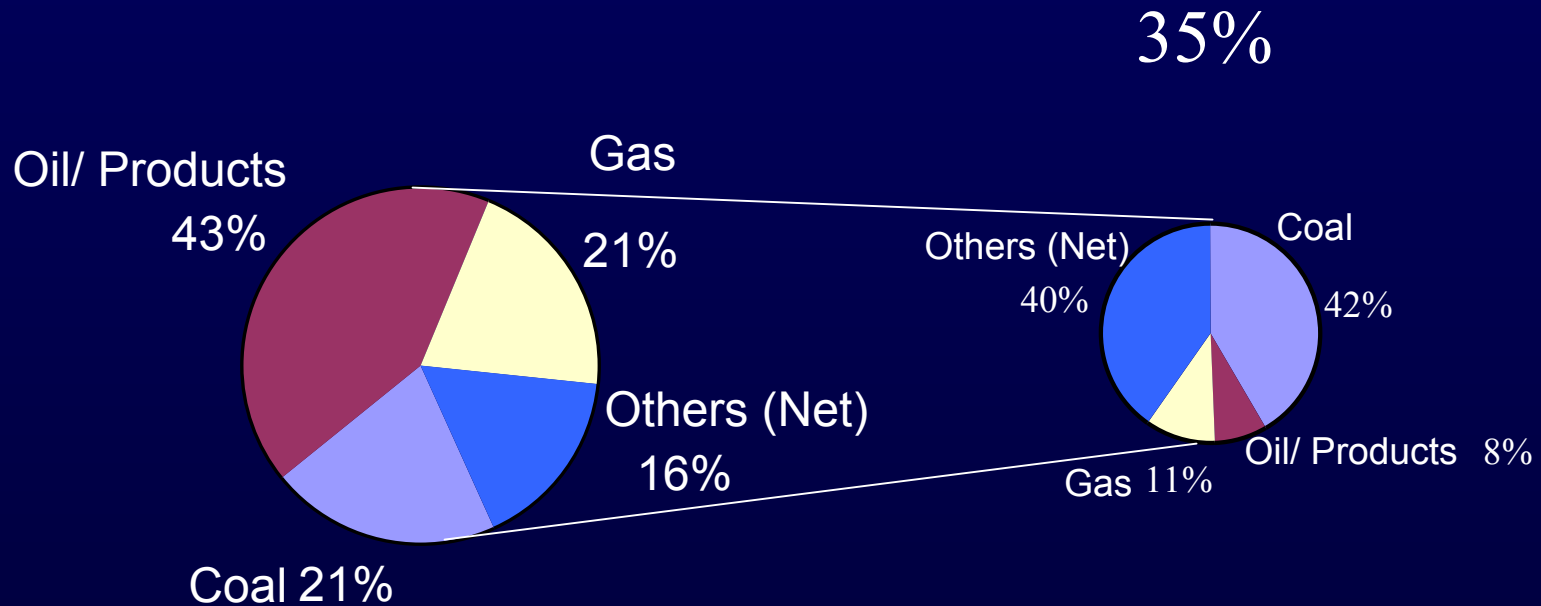
Risks – Lender's view

- **Market Fundamentals**
- **Counterparty Credit**
- **Infrastructure Availability/Access**
- **Pricing**

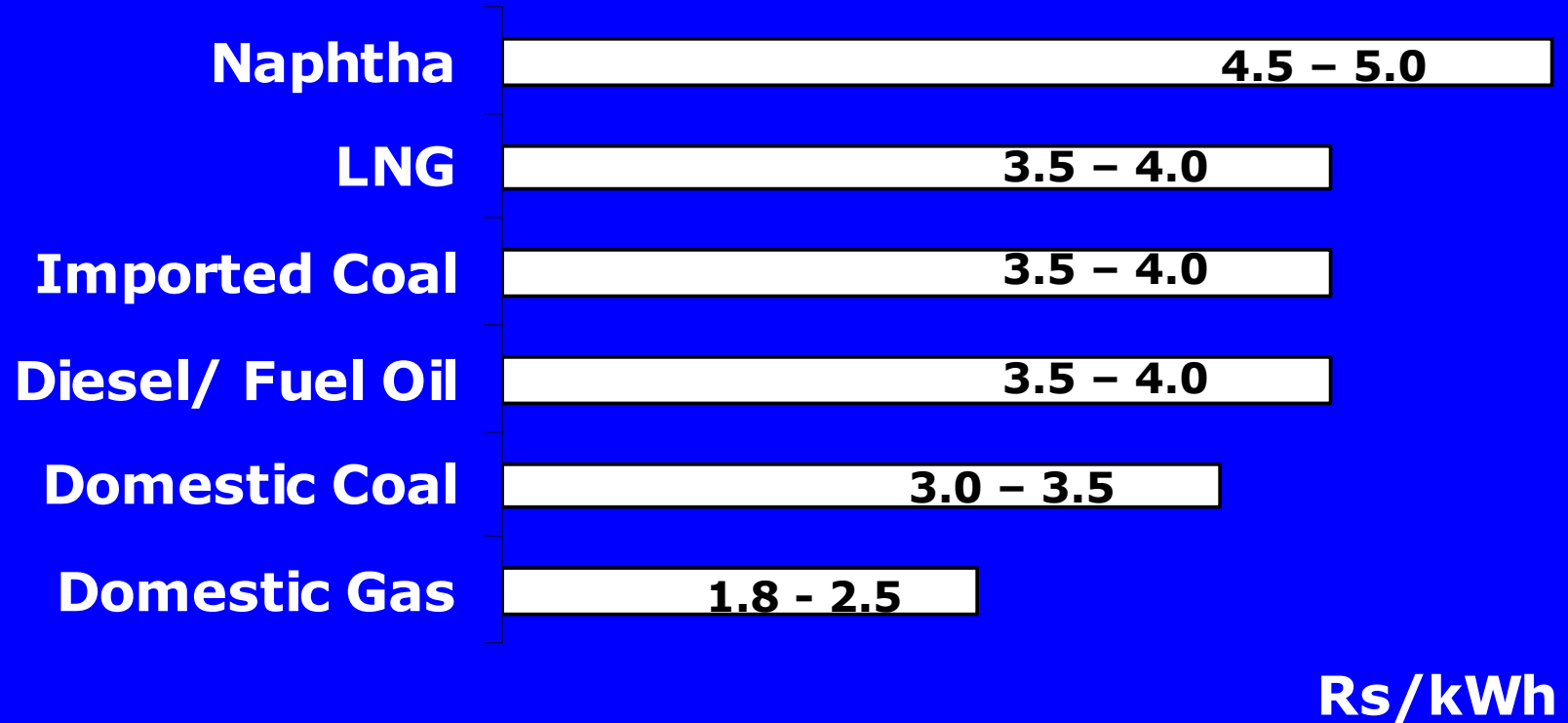
Supply and Demand for Gas



Fuel Supply and demand in Electricity Sector



Competitive Position of Gas for Power Generation



Market Fundamentals

Conclusion – lenders will accept that gas has an important part to play in the Indian energy map driven by

- *Environmental (replace coal and lignite)*
- *Cost/Stability (replace volatile naphtha and diesel)*
- *Meet projected demand (2005)*
- *Large potential demand for natural gas and CNG*

However

- **limited domestic gas available for marketing (65 MMSCMD)**
- **Options (local, import via pipeline, LNG) require significant investment in infrastructure which is likely to be a mix of:**
 - *Equity*
 - *Foreign debt (commercial, MLA, ECA)*
 - *Local debt*

Counterparty Risk – Project Development

This risk has been a major focus in India as part of the country's ability to develop the IPP sector. The issues for gas are the same whether:

- **Piped Gas – Bangladesh, Iran, Qatar others**
- **LNG – Petronet, Pipavav, Hazira, Kakinada, Metgas etc**
- **Domestic Production – Lakshmi, Annapurna etc.**

Counterparty Risk - Development Models

As the market is not a retail or large homogenous wholesale market lenders need a reliable offtaker

- **Anchor Consumer Model – Dabhol, Kakinada LNG, Lakshmi**
- **Aggregator Model – Petronet, India Bangladesh Pipeline**
- **Combination Model – Metgas**

Counterparty Risks - SEBs

- **SEBs – slow reform/poor financial position makes most of these unacceptable as counterparties**
- **Securitization of receivables has limited effectiveness**
- **Government support has not been the solution (Dabhol)**

Conclusion – SEBs will not be acceptable counterparties until they are on a firm financial footing

New Anchor Counterparties (greenfield projects)

- **Gas project lenders are taking “project-on-project” risk**
- **Is the IPP taking unacceptable SEB risk?**
- **Who will take the pricing basis risk, including currency risk? IPPs tend to be highly leveraged**
- **Few IPPs are large enough to support a major gas project**

Conclusion – IPPs might occasionally be suitable anchor counterparties if large enough, conservatively structured and have strong shareholders

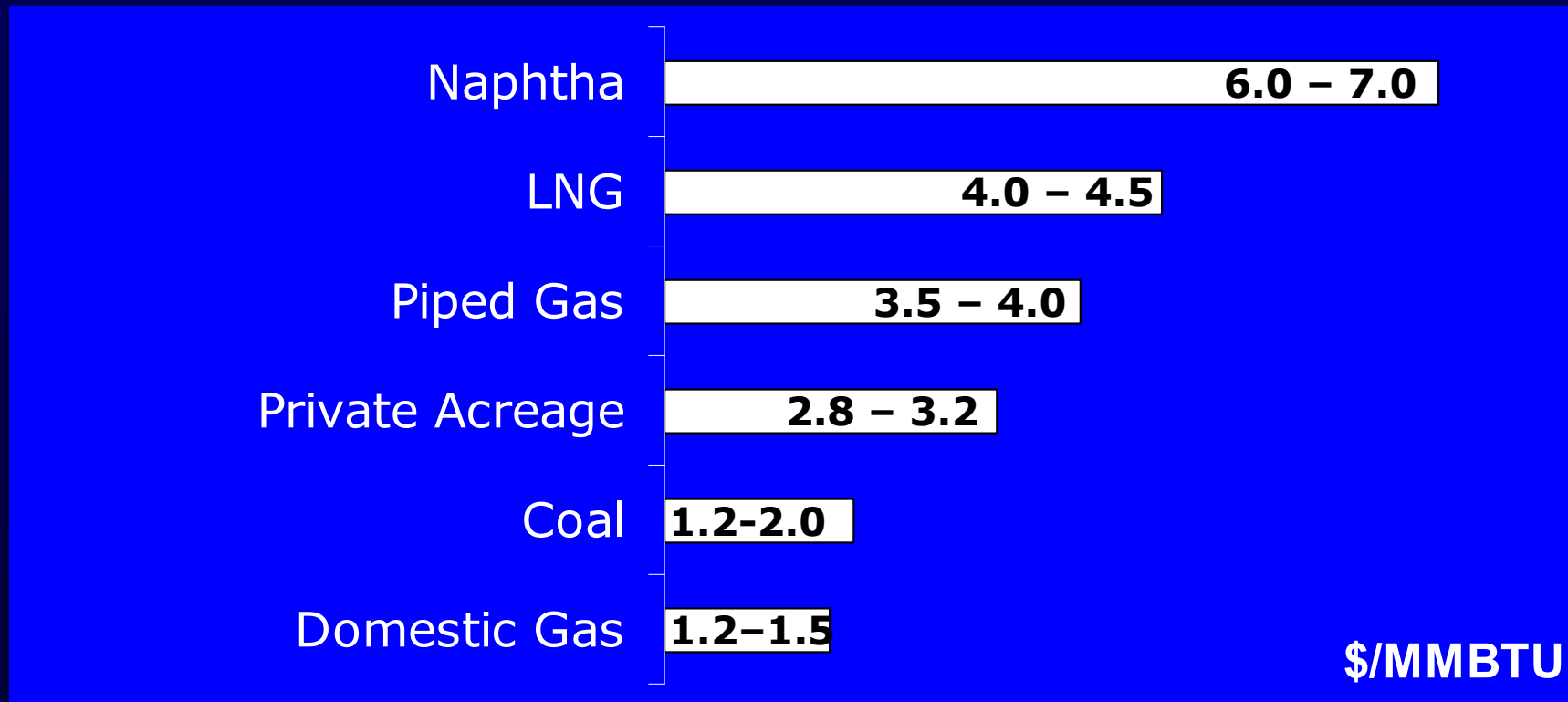
Counterparty Risk – the Aggregators

- **To be acceptable they need:**
 - **Strong balance sheets**
 - **Gas, Power, Fertiliser or Petrochem market credibility**
 - **Ability and willingness to handle various project and market risks (esp construction and price)**
 - **Ability or demonstrable potential to access end users**
- **Possible aggregators**
 - **PSUs**
 - **Indian private sector**
 - **Major foreign Oil & Gas cos or other utilities**

Infrastructure

- **Limited distribution infrastructure coupled with restricted access**
- **Greenfield gas projects planned with dedicated infrastructure – increased time and cost implication**
- **Limits market creation**
- **Urgent need for enabling legislation for infrastructure creation (the UK/ US Models)**

Price Risk – Comparison



Price Risks

- The policy of controlled pricing to subsidise end users creates significant “basis risk”.
- Significant price differential between import projects and domestic gas. New import based projects cannot match but “aggregation pricing” a possible solution.
- Well crafted supply contracts with floors and caps go a long way to resolving some of these issues. However risks will remain,
- FX risk can only be taken by the end user or the aggregator
- Solution needs to lead to sustainable pricing for gas for users

Scorecard

Positive

- Obvious demand
- Government priority
- Local funding liquidity

Negative

- Complex regulatory regime
- Access to distribution network via a monopoly who is also a competitor
- End user pricing unrelated to primary markets
- Lack of credit worthy counterparties
- Dabhol
- Lack of policy integration between sectors

Conclusion

Short term

- **Aggregators will be required to enable major projects to proceed**
- **Pricing formula in gas purchase contracts will need to offer sustainable and predictable prices while offering sellers a reasonable return**

Longer Term

- **Regulatory framework required to:**
 - **Create access to market**
 - **Simplify pricing and relate prices to markets**
- **Radical power sector reform**

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